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Finding Least Cost Travel Route Using unconstrained CTP Query: A Survey

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Abstract
Nowadays, many travelers targeting the same destination, using their own transport that causes traffic and pollution problems to the environment. To avoid those problems they may assemble at meeting points and can collectively use public or private transport to the destination which can also reduce the global travel cost like energy, money etc... This will benefit the society and the environment. Some existing multi-source trip planning queries like group nearest neighbor query, group trip planning query aims to reduce all the travelers global travel cost by assuming that each traveler goes to the destination individually and do not take collective travel into account. Existed Collective travel planning (CTP) query is used to find the minimum cost path that connects multiple sources and a destination via at most k meeting points. The query is designed for ride sharing by a large population of travelers going to the same destination. I propose a CTP query without k constraint. The query then finds the least cost travel route connecting multiple sources and a destination via unconstrained meeting points. This can be possible by designing an algorithm with a suitable approximation ratio to compute the query in interactive time.

Index terms: — CTP, approximation ratio; group trip planning query; group nearest neighbor query; multi-source trip planning queries;

INTRODUCTION

Now a days, many travelers targeting the same destination, using their own transport that causes traffic and pollution problems to the environment .To avoid those issues they may assemble at meeting points and can collectively use public or private transport to the destination which can also reduces the global travel cost like energy , money etc..This will benefit the society and environment. Existed Collective travel planning (CTP) query [1] is used to find the minimum cost path that connects multiple sources and a destination via at most k meeting points. The query is designed for ride sharing by a large population of travelers going to the same destination. We have just begun to study user collective travel issues in Spatial Networks. Some of the most challenging issues in this scenario are Increases performance level, Avoids redundant computations, Efficient and robust solution, Returns optimal route and guarantees the quality of result, minimum cost path that connects multiple sources and a destination. Group nearest neighbour and aggregate nearest neighbour queries are typical queries that have multiple sources and a single destination. They assume that each traveller goes to the destination individually and the queries aim to find the optimal location of the destination to minimize the travellers' global travel cost. A group travel planning query extends the group nearest neighbour query to the multiple-destinations scenario, and it assumes that a group of travellers assemble at the first destination and then go together to the next destination. The group nearest group query is another type of query with multiple sources and multiple destinations. It matches each traveller to their closest destination, and the query aims to find the optimal locations of the destinations to minimize the travellers' global travel cost. Unlike the existing studies, the Collective Travel Planning query has multiple query sources, multiple meeting points, and single destination. It can be viewed as a combination of the group nearest

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neighbour query and the group nearest group query. It assumes that a group of travellers meet at their closest meeting point and then go together to the destination, and its target is also to minimize the global travel cost. The main aim behind all techniques is to minimize the energy and cost of search performed on each retrieval traveller information in order to compute the final result. Our Current Collective travel planning approaches for real-time individual trip planning are based on dynamic result service.

LITERATURE SURVEY

"**Voronoi-Based K Nearest Neighbor Search for Spatial Network":-**

A frequent type of query in spatial networks (e.g., road networks) is to find the K nearest neighbors (KNN) of a given query object. With these networks, the distances between objects depend on their network connectivity and it is computationally expensive to compute the distances (e.g., shortest paths) between objects. In this paper, we propose a novel approach to efficiently and accurately evaluate KNN queries in spatial network databases using first order Voronoi diagram. This approach is based on partitioning a large network to small Voronoi regions, and then pre-computing distances both within and across the regions. By localizing the precipitation within the regions, we save on both storage and computation and by performing across-the-network computation for only the border points of the neighboring regions, we avoid global pre-computation between every node-pair.

"Efficient Query Processing on Spatial Networks":-

A framework for determining the shortest path and the distance between every pair of vertices on a spatial network is presented. The framework, termed SILC, uses path coherence between the shortest path and the spatial positions of vertices on the spatial network, thereby, resulting in an encoding that is compact in representation and fast in path and distance retrievals. Using this framework, a wide variety of spatial queries such as incremental nearest neighbor searches and spatial distance joins can be shown to work on datasets of locations residing on a spatial network of sufficiently large size. The suggested framework is suitable for both main memory and disk-resident datasets.

"Privacy Protected Query Processing on Spatial Networks":-

With the proliferation of mobile devices (e.g., PDAs, cell phones, etc.), location-based services have become more and more popular in recent years. However, users have to reveal their location information to access location-based services with existing service infrastructures. It is possible that adversaries could collect the location information, which in turn invades user's privacy. There are existing solutions for query processing on spatial networks and mobile user privacy protection in Euclidean space. However there is no solution for solving queries on spatial networks with privacy protection. Therefore, we aim to provide network distance spatial query solutions which can preserve user privacy by utilizing K-anonymity mechanisms. In this paper, we present two novel query algorithms, PSNN and PSRQ, for answering nearest neighbor queries and range queries on spatial networks without revealing private information of the query initiator.

"Distance Oracles for Spatial Networks":-

The popularity of location-based services and the need to do real-time processing on them has led to an interest in performing queries on transportation networks, such as finding shortest paths and finding nearest neighbors. The challenge is that these operations involve the computation of distance along a spatial network rather than .as the crow flies.. In many applications an estimate of the distance is sufficient, which can be achieved by use of an oracle. An approximate distance oracle is proposed for spatial networks that exploits the coherence between the spatial position of vertices and the network distance between them. Using this observation, a distance oracle is introduced that is able to obtain the e-approximate network distance between two vertices of the spatial network. The network distance between every pair of vertices in the spatial network is efficiently represented by adapting the well-separated pair technique to spatial networks.

"Efficient K-Nearest Neighbor Search in Time-Dependent Spatial Networks"-

The class of k Nearest Neighbor (kNN) queries in spatial networks has been widely studied in the literature. All existing approaches for kNN search in spatial networks assume that the weight (e.g., travel-time) of each edge in the spatial network is constant. However, in real-world, edge-weights are time dependent and vary significantly in short durations,

hence invalidating the existing solutions. In this paper, we study the problem of kNN search in time dependent spatial networks where the weight of each edge is a function of time. We propose two novel indexing schemes, namely Tight Network Index (TNI) and Loose Network Index (LNI) to minimize the number of candidate nearest neighbor objects and, hence, reduce the invocation of the expensive fastest-path computation in time-dependent spatial networks.

EXISTED SYSTEM

For this the authors [1] used two algorithms exact and approximation algorithms. Here, the author find out six interesting directions for existed research. First, it is of interest to study the Existed CTP query without the k constraint. The query then evaluates the least-cost travel route connecting multiple query sources and a destination via unconstrained meeting points. A key challenge is to design an approximation algorithm with a suitable approximation ratio to compute the query in interactive time. Second, it is of interest to use travel time in the query and take the travelers' transfer times into account, as this makes the problem more practical. The resulting query then aims to evaluate the travel route with the minimum total travel time that connects multiple travelers and a destination, via at most k meeting points. Third, it is of interest to take the changes of travel costs of road segments into account. In further, author will extend the developed algorithms to dynamic spatial networks. Fourth, it is of interest to study a continuous CTP query for the scenario where one or more travelers fail to reach the meeting points on time. Here author may need to catch up with the group. Fifth, in the approximation algorithm, it is of interest to study how to identify a good initial answer efficiently, to further enhance the query efficiency. Sixth, to find the optimal solution, the exact algorithm should be conducted k times to test all possible values of k. It is of interest to study a more integrated exact algorithm to achieve a more query efficiency. Therefore, for different instances of the problem, we can choose the algorithm with the best approximation ratio, since they all run in polynomial time. Furthermore, we use some of the proposed algorithms to derive efficient heuristics for multiple source meeting point stored in external memory. Finally, we give an experimental evaluation of the proposed algorithms using synthetic.

The proposed approach reduce the travel time into consideration and helps the travelers, which visit several places of interest and have minimum travelling time on Spatial Networks. This paper formulate a detailed survey about various travel planning query methods used in Spatial Networks and investigates an important problem, called Collective travel planning Query, in the time dependent Spatial Networks. Travel planning queries are used to find the optimal meeting point in the Spatial Networks. Various travel planning queries have been proposed. All methods give an optimal solution.

The most important Collective travelling attributes are:

1. Trip purpose
2. Time
3. Mode Of Transport
4. Duration
5. Location
6. Travel Route
7. Traffic Condition

Hare proposed approach studied the new problem of optimal routing query in metrics and bounds for these scenarios. In the future we intend to explore the application of related techniques to variations of the group nearest neighbor search. Consider, for instance, that Q represents a set of multiple meeting point and the goal is to find multiple sources of P to a single meeting point so that the sum of distances (of meeting point to its nearest meeting point) is minimized. The CTP query has to stabilize accuracy and efficiency.

Finally, we presented a comprehensive experimental evaluation. For future work we plan to extend our algorithms to support trips with user defined constraints. Examples include visiting a certain category during a specified time period [3], visiting categories in a given order, and more. We conducted several experiments to find out the performance of our proposed approaches.

Group nearest neighbor and aggregate nearest neighbor queries are typical queries that have multiple sources and a single destination. They assume that each traveler goes to the destination individually and the queries aim to find the optimal location of the destination to minimize the travelers' global travel cost. A group travel planning query extends the group nearest neighbor query to the multiple-destinations scenario, and it assumes that a group of travelers assemble at the first destination and then go together to the next destination. The group nearest group query is another type of query with multiple sources and multiple destinations. It

matches each traveler to their closest destination, and the query aims to find the optimal locations of the destinations to minimize the travelers' global travel cost. Unlike the existing studies, the Collective Travel Planning query has multiple query sources, multiple meeting points, and single destination. It can be viewed as a combination of the group nearest neighbor query and the group nearest group query. It assumes that a group of travelers meet at their closest meeting point and then go together to the destination, and its target is also to minimize the global travel cost.

We proposed scenario consider a different route search query on the spatial networks: the length of the route should be smaller than a specified k threshold while the total text relevance of this route is maximized.

We observe that user needs may exist that are not easily fulfilled by a single meeting point, but where multiple source meeting point may combine to meet the user needs. Put differently, the multiple source meeting point in a group collectively meet the user needs. For instance, consider a tourist who is on vacation in an unfamiliar city. he wishes to have dinner at a Japanese restaurant, do some shopping, and have a drink in a near hotel. For convenience, he prefers locations with in walking distance of each other. Conventional spatial queries return a single meeting point which does not meet the tourist's needs. Rather, a query that returns a group of meeting point that together meet the needs is called for. And one more example, an organizer wishes to assemble a team of helpers for a particular volunteer task. The helpers must together possess the capacity required for successful completion of the task. This requires that the helpers should be close to the location of the organizer and close to each other as well.

CONCLUSION

Finally, the proposed unconstrained CTP query is used to find the minimum cost path that connects multiple sources and a destination via unconstrained meeting points. that means meeting points may change dynamically .this is done by including the attributes Trip purpose, Time, Mode Of Transport, Duration, Location, Travel Route & Traffic Condition in the approximation algorithm while calculating the shortest path.

REFERENCES

[1] "Collective Travel Planning in Spatial Networks" Shuo Shang, Lisi Chen, Zhewei Wei, Christian S. Jensen, Fellow, IEEE, Ji-Rong Wen, and Panos Kalnis

[2] Sithara M P1 and Varsha C2 "An Efficient Trip Planner for Time Dependent Road Networks".

[3] Yunjun Gao and Baihua Zheng "Continuous Obstructed Nearest Neighbor Queries in Spatial Databases".

[4] S.KARTHIK "Optimal Route Query Based On Forward Search and Backward Search".

[5] Xin Cao, Lisi Chen ,Gao Cong and Xiaokui Xiao "Keyword aware Optimal Route Search".

[6] Alireza Abbasi ,Taha Hossein Rashidi ,Mojtaba Maghrebi and S. Travis Waller "Utilising Location Based Social Media in Travel Survey Methods: bringing Twitter data into the play".

[7] XIN CAO, BENG CHIN OOI, GAO CONG and TAO GUO, CHRISTIAN S. JENSEN, "Efficient Processing of Spatial Group Keyword Queries".

[8] DIMITRIS PAPADIAS and KYRIAKOS MOURATIDIS and CHUN KIT HUI "Aggregate Nearest Neighbor Queries in Spatial Databases"

[9] Mehdi Sharifzadeh · Mohammad Kolahdouzan · and Cyrus Shahabi "The optimal sequenced route query".

[10] Feifei Li, Dihan Cheng, Marios Hadjieleftheriou, George Kollios, and Shang-Hua Teng "On Trip Planning Queries in Spatial Databases".

[11] Yunjun Gao1, Baihua Zheng1, Gencai Chen2, Wang-Chien Lee3, Ken C. K. Lee3, Qing Li4 "Visible Reverse *k*-Nearest Neighbor Queries".

[12] Ugur Demiryurek, Farnoush Banaei-Kashani, and Cyrus Shahabi "Effcient Continuous Nearest Neighbor Query in Spatial Networks using Euclidean Restriction".

[13] Amit Singh ,Hakan Ferhatosmanoˇ glu,And Ali S¸ aman Tosun "High Dimensional Reverse Nearest Neighbor Queries".

[14] Dimitris Papadias† ,Qiongmao Shen† ,Yufei Tao,§ and Kyriakos Mouratidis "Group Nearest Neighbor Queries"

[15] Fabian Gieseke , Justin Heinermann , Cosmin Oancea , and Cosmin Oancea "Buffer k-d Trees: Processing Massive Nearest Neighbor Queries on GPUs".

[16] "Probabilistic Nearest Neighbor Queries on Uncertain Moving Object Trajectories" Johannes Niedermayer, Andreas Z¨ufle, Tobias Emrich,Matthias Renz, Nikos Mamouliso, Lei Chen+, HansPeter Kriegel.

[17] "Approximate Nearest Neighbor Queries in Fixed Dimensions_"Sunil Aryay and David M. Mountz.

[18] "Probabilistic Nearest-Neighbor Query on Uncertain Objects" Hans-Peter Kriegel, Peter Kunath, and Matthias Renz.

[19] "Plane-Sweep Algorithms for the K Group Nearest-Neighbor Query"George Roumelis1, Michael Vassilakopoulos2, Antonio Corral3 and Yannis Manolopoulos1.

[20] "All-Nearest-Neighbors Queries in Spatial Databases" Jun Zhang,Nikos Mamoulis,Dimitris Papadias, And Yufei Tao.

[21] "Location Oblivious Privacy Protection for Group Nearest Neighbor Queries" A.K.M. Mustafizur Rahman Khan1, Tanzima Hashem2, Egemen Tanin1, and Lars Kulik1.

[22] "Aggregate Nearest Neighbor Queries in Road Networks" Man Lung Yiu, Nikos Mamoulis, and Dimitris Papadias.

[23] "Nearest Neighbor Queries in Metric Spaces" Kenneth L. Clarkson.

[24] "Continuous aggregate nearest neighbor queries" Hicham G. Elmongui ·Mohamed F. Mokbel · and Walid G. Aref.

[25] "Two Ellipse based Pruning Methodsfor Group Nearest Neighbor Queries" Hongga Li,Hua Lu,Bo Huang and Zhiyong Huang….